

# Spearman Rank Correlation Coefficient

This test makes use of ranked ordinal data and is particularly useful as a good general assessment of a relationship. Because it does not use absolute values of the data, its accuracy is somewhat less than that of the Pearson Product-Moment test (see page 30).

## Example 1

Measurements were taken of seed production in the rush *Juncus effusus* on moorland sites at different altitudes. At each altitude a large number of seedheads were collected and the mean number of seeds per seed-head was calculated. The data is shown in Table 5.1 (below left).

Figure 5.2 (below) shows the data plotted as a scattergraph, suggesting a negative correlation.

### Null Hypothesis ( $H_0$ )

Altitude has no effect on seed production of the rush.

Altitude (ft)	Mean no. of seeds
700	126.5
850	94.4
950	103.4
1050	50.5
1100	65.2
1150	64.1
1250	75.8
1394	52.8
1450	63
1500	52.4

Table 5.1

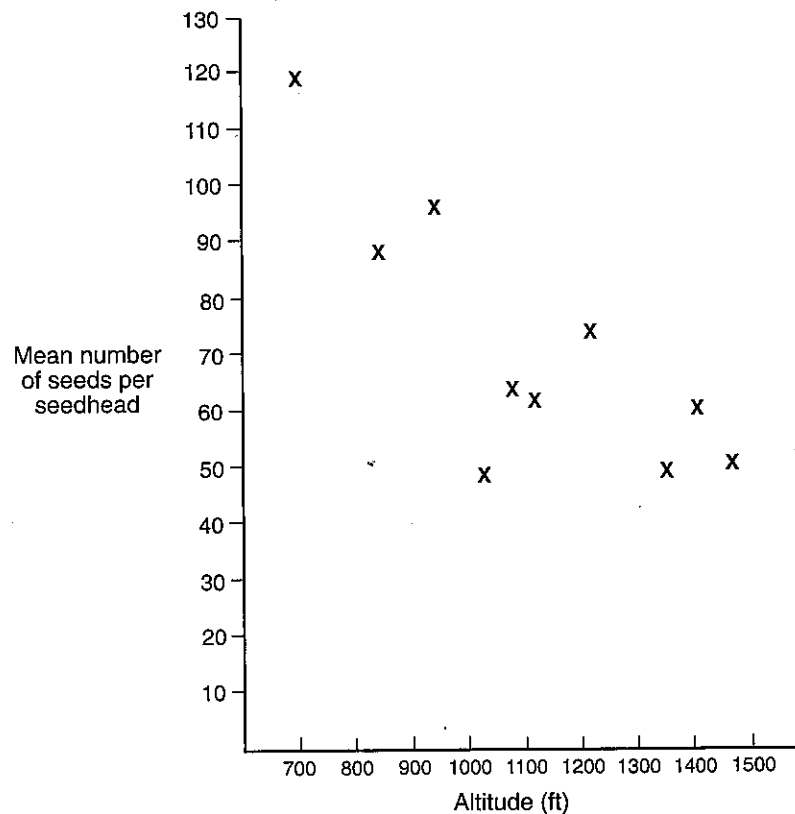


Figure 5.2: Relationship between altitude and seed production of the soft rush (*Juncus effusus*)

The information should be set out as in Table 5.2 below.

Variable A Altitude in feet	Rank	Variable B Seeds (mean no. per head)	Rank	d	d <sup>2</sup>
700	10	126.5	1	9	81
850	9	94.4	3	6	36
950	8	103.4	2	6	36
1050	7	50.5	10	-3	9
1100	6	65.2	5	1	1
1150	5	64.1	6	-1	1
1250	4	75.8	4	0	0
1394	3	52.3	9	-6	36
1450	2	63	7	-5	25
1500	1	52.4	8	-7	49
				$\Sigma d^2 = 274$	

Table 5.2